



QRO

MONTHLY NEWSLETTER OF THE PALOS VERDES AMATEUR RADIO CLUB

MAY 2017

What you would experience at the “New” Dayton Hamvention

The iconic Dayton Hamvention, the Western Hemisphere’s largest amateur radio convention, moved to a new site this year during its May 19-21 run in Xenia, Ohio, and this month’s PVARC meeting will take you there.

Diana, AI6DF, experienced both the improved aspects vs. the former site at dilapidated Hara Arena, but also some elements needing improvement. Hamvention is an all-out assault on one’s senses given the sheer number of people and exhibits, walking distances, noise, heat, humidity, weather extremes, and traffic to get there. It’s said all hams should try to experience Hamvention at least once in their lifetime—something akin to a pilgrimage. The AI6DF slide and video presentation will definitely provide a sense of what you can now expect. ■

The “New” Dayton Hamvention

Diana Feinberg, AI6DF

PVARC Monthly Meeting,
Thursday, June 1, 2017,
7:30 pm at Fred Hesse
Community Park,
29301 Hawthorne Blvd.,
Rancho Palos Verdes,
Visitors Welcome.

Optional no-host pre-meeting dinner
5:30-7:00 pm. Red Onion Restaurant,
706 Silver Spur Road, Rolling Hills
Estates. (No reservation required,
order what you wish.)

Going digital in VHF/UHF radios...and many decisions

By Clay Davis, AB9A

PVARC Director and Past Vice President

Recently, the VHF/UHF mobile radio in my Jeep failed. It was about 5 years old. My first thought was that the repair is probably going to cost enough to justify buying a new radio. So, I started looking around, on the internet, for a new analog radio. What I discovered is that latest generation of analog HT's and mobile radio's also come with some flavor of digital voice format included. Just like the introduction of personal computers in the 1980's, when the choice was Windows or Mac OS, I realized I didn't know enough to make an informed choice. Well, it turned out that Yaesu's service center, in Cerritos, gave me stellar customer service. They called me in two days and said "your radio is ready". They replaced two crystal filters and updated the firmware for \$50. I dodged a bullet. And, bought some time to learn more about digital radio. Kudos to Yaesu!

The next thing that happened. Over a cup of coffee, at a local city EmCom meeting, WA6AJC set his HT on the table and said "this is my new DMR radio". To which I replied, what is DMR? The subsequent conversation peaked my curiosity and sent me into a deep dive into the world of Digital Mobile Radio (DMR).

The main reason to use an HT is to talk to somebody. So, how does digital radio help me do that?

Digital Voice vs Analog Voice

Digital voice transmission helps overcome some of the signal to noise and voice intelligibility problems of analog transmission channels.

When you are using an analog HT with a strong signal into a local repeater, you get "full quieting" on the repeater. That means that your voice is clear and the background noise is very low. But, because of distance or terrain, as your signal gets weaker your voice volume goes down and the background noise goes up. This process continues until, eventually, you reach a location where the voice is so low and the noise is so high that either you can't capture the repeater or your transmission is unintelligible. Analog channels are sometimes described as failing gracefully. Because, the change from "full quieting" to unintelligible, is a continuous sliding scale.

A digital radio first converts analog voice to digital data. It then compresses the data, so it takes up less bandwidth, using a digital Codec (encoder/decoder). Digital data compression is not the same as analog signal compression. It does not change the dynamic range. It just squeezes the data into a narrower bandwidth, without changing the voice quality. And, finally it adds something called "forward error correction", which lets the radio's receiver fill in missing bits of data that get lost in transmission. It's the magic of digital signal processing (DSP).

The result of all of this DSP is that as the RF signal gets weaker and the background noise goes up, the built in error correction is able to totally reconstruct the digital voice. And, you hear crystal clear voice with almost no noise, even out to the fringe areas where analog voice reception is a challenge to understand. But, eventually, you reach a point where the RF signal is so weak and noise so high, that the error correction can't reconstruct the data. When this happens the radio just mutes. It doesn't bombard you with harsh noise or digital artifacts. It just goes quiet. So, digital voice doesn't fail gracefully. It either works perfectly. Or, it doesn't work at all. The advantage of digital voice is increased intelligibility and less ear fatigue. *Continued on next page* ►

Going digital in VHF/UHF radios

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But Wait There's More...

Digital radio brings more than digital voice to the party. Once your voice is digitized, it can be stuffed into an Internet Protocol (IP) packet and sent out over the internet to another repeater. What that means is, your digital voice can go into one digital repeater and come out on one or more different digital or analog repeaters. That process is called linking.

Linking is available on analog repeaters. But, digital IP linking is like analog linking on steroids. Hundreds or thousands of repeaters can be linked into a world wide network. Then virtual "Talk Groups" can be created on that network. Each radio can decide which Talk Group to talk to and listen to. A radio can even listen to more than one Talk Group at the same time.

Imagine a single hypothetical analog repeater that could have 16 PL tones at the same time. And, each PL tone was for a separate group that could talk on their own channel. And, the other groups wouldn't hear them. And, imagine that repeater was linked to another identical repeater that routed the PL tone groups between repeaters. Pretty amazing.

But There's So Many Flavors...

There are quite a few digital radio systems on the market. And, they are not compatible with each other. How, do I narrow the choice down to one?

Well, there is no right answer. But, there are some considerations that can help you choose the right one for you:

- Who do you want to talk to? If your friends or club have chosen a system, you probably want to go with that. You will get good peer (elmer) support. And, disparate systems are not compatible. (See AI6DF's article in the May 2014 QRO about incompatible digital radio systems: <http://www.n6rpv.net/pvarc/2014QRO/QROMay2014.pdf>).
- What geographical area do you want to cover? Google the repeater coverage in the areas you are interested in.
- What features do I need? Each system has some differentiating features. Choose which ones are important to you.
- How much am I willing to spend? The entry price points are different.

There are three primary competing digital systems in amateur radio:

1. D-STAR (iCom, Kenwood)

Developed by the Japan Amateur Radio League (JARL). And, commercialized by iCom and Kenwood.

Modulation: GMSK (Gaussian Minimum Shift Keying)

The current entry level radio is the iCom ID-31, \$290.00. It's dual band plus analog.

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PVARC members needed at Field Day, June 24-25, at Ridgecrest Intermediate School

Please save the dates: the 2017 ARRL Field Day operating event is Saturday-Sunday, June 24-25. The PVARC will again have portable-powered radio stations on Ridgecrest Intermediate School's soccer field. Ridgecrest's field is 1,224 feet above sea level and has an excellent signal take-off to the north and northeast.

We expect to again operate as a 2A category Field Day site and need operators, so how about you? Field Day is a 24-hour non-stop event with plenty of time slots. We also need operators to work VHF/UHF (mostly 6-meters) at our "bonus" station during daytime hours.

More info to follow...but let us know if you can help at this year's Field Day. We're there to demonstrate public service...and have fun. ■



Below: Rocco Lardiere, N6KN, about to start PVARC's CW station at Field Day 2016 inside tent provided by Sid Wielin, KF6QFH, and Fran Wielin, KF6QFG..
PHOTO: JOHN FREEMAN, WW6WW.



At the May 13th HF Enthusiasts Group meeting Bob Millard, KE6JI, showed his "JarTenna" dummy load—much less expensive than buying commercially-made ones that are nothing more than a paint can filled with vegetable oil. You'll definitely want a dummy load for testing your transmitters at full power without sending over the air.

PHOTO: MALIN DOLLINGER, KO6MD



The PVARC's HF Enthusiasts Group meetings continue having great discussion topics and projects

The next PVARC HF Enthusiasts Group meeting will be Saturday, June 10 (location to be mentioned soon). Attending the HF Enthusiasts May 13th meeting were (in no particular order): Malin, KO6MD; Ron, AC6RW; Clay, AB9A; Jerry, NG6R; Bob, KE6JI; Hugo, KM6DQU; Don, KD6UMC; Carlos, WD6Y; Rod, KK6CYU; and Jeff, K6JW.

Topics covered at the May 13 meeting (thanks to reporting by Jeff, K6JW) were:

Bob: Homebrew "JarTenna" dummy load (see photo above)

Jerry: Discussion of phase relationships between voltage and current with reference to polar coordinates; label printer for \$29 from Office Depot; adapters to connect one SignalLinkUSB to three separate radios, each a different brand; USB microscope that connects to a computer

Ron: CS SSB kit transceiver for 40 meters

Don: Request for help with Smith chart interpretation

Clay: QSL museum website; unexpected performance from dipole antenna; discussion digital mobile radio ("DMR")

Hugo: Portable telescoping MFJ antenna and newly installed dipole on his condo roof

Carlos: Shared two QSL cards; showed small Arduino shield breadboard; presented data on DXing with JT65 and discussed JT65 DX software

Jeff: Shared information regarding the ARRL's restoration of Midway and Kure to the active DXCC entity list after their erroneous deletion; mentioned that in September he plans to offer for sale his Alpha 9500 legal limit HF amplifier, and anyone interested should contact him for further information. ■

Impedance in polar coordinates—not a complex topic! (Or, is it?)

By Jerry Kendrick NG6R

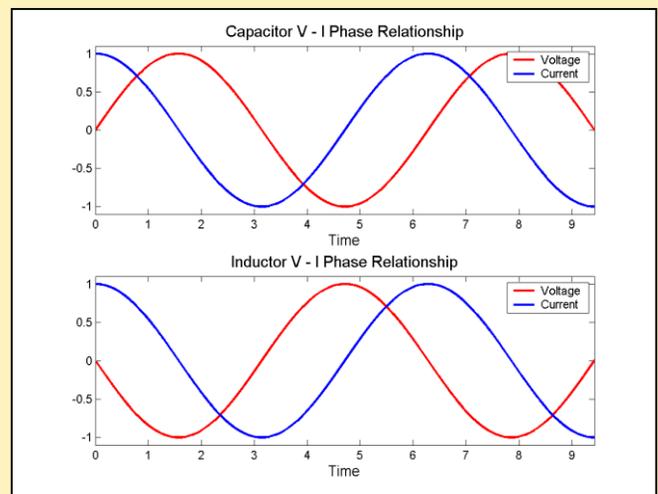
After a recent PVARC HF Enthusiasts Group meeting, a question was asked about polar coordinates and how that topic relates to impedance. Interest was expressed in seeing this concept explained. A periodic review of this concept—one of the fundamental building blocks in electrical engineering—is a worthwhile exercise for all of us technically-oriented ham radio operators. To understand why impedance and polar coordinates even go together in the same sentence, it's necessary to know a little about the field of complex mathematics. But first things first; what is impedance?

Impedance is the opposition that an electronic component or circuit gives to alternating current (AC) passing through it. For direct current (DC), that opposition is called “resistance.” For DC, impedance and resistance are one and the same. But, when AC passes through a component or circuit, voltage (across) and current (through) may not be in phase. That is, if you were to examine the AC voltage waveform and the AC current waveform, one might be leading the other—they would be out of phase. When this happens, our simple formulations that worked well for DC have to be extended to account for this complication.

We're accustomed to using Ohm's law for resistors, i.e., resistance (R, ohms) is voltage (V, volts) divided by current (I, amperes). And that same law applies for AC, as well as DC, in the case of ideal resistors. For ideal resistors, there is no phase shift occurring between voltage and current. But, capacitors (voltage across the component lags the current through it by 90 degrees) and inductors (voltage across the component leads the current through it by 90 degrees) behave differently than resistors. [1] By leading (lagging), we mean occurring earlier (later) in time. This is illustrated conceptually in the normalized graphs below.

When inductors and capacitors are introduced into a circuit, it's safe to say that voltage across that circuit is not likely to be exactly in phase with the current going through it. So, if we want to talk about the impedance of that circuit, it would not be simply voltage divided by current, because there's likely a phase difference. We need a more complete way to characterize the opposition to AC.

The opposition that an inductor or a capacitor has to AC going through it is called “reactance,” as compared to “resistance” for a pure resistor. Reactance is like resistance, in that both oppose the passage of alternating current. But, reactance in these components differs from resistance in that voltage and current are exactly 90 degrees apart (leading for inductors and lagging for capacitors). So, whether we



have just a couple of components or a large assortment of components in an electronic circuit, we can characterize impedance of that circuit by a “special” addition of a resistive element and a reactive element. Mathematically, we can say that $Z = R + jX$, *Continued on next page* ▶

Impedance in polar coordinates—not a complex topic! (Or, is it?)

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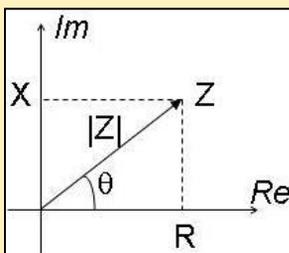
where Z is the (complex) impedance, R is resistance and X is reactance. The value of X is a positive quantity for an inductor (and is called inductive reactance) and is negative for a capacitor (called capacitive reactance). The term “ j ” is an indicator that the reactance element is at 90 degrees to the resistance element, i.e., R and X can't be added directly because they're entities that are not in phase and must be treated separately.

What is this factor “ j ”? We've just ventured into complex math. It all began when mathematicians, even starting with architects designing pyramids in the first century [2], contemplated the meaning of taking the square root of a negative number. So, a new parameter was simply “invented” which when squared would yield minus one. Because no real number has this property, the entity was called “imaginary” and was given the symbol “ i ”. [Note that since electrical engineers have customarily used “ i ” as the symbol for electrical current, books and articles that use complex math slanted toward the electrical sciences substitute “ j ” for “ i ”. So, you'll see both “ i ” and “ j ” in the literature, both representing the square root of minus one.]

Complex math was “invented slowly” over several centuries, making serious progress in the mid-1600s when Rene Descartes posed the standard form, $a + bi$, where “ a ” is the real part, “ b ” is the imaginary part and “ i ” is the square root of -1. This standard form, dubbed by Carl Gauss almost two centuries later as a “complex number,” has become a mainstay of mathematics in engineering and physics for many applications.

Having an “imaginary” parameter with the property that its square is a real number has tremendous value in the casting and solution of many engineering/physics/mathematics problems. [2][3][4] It's not necessary to try imagining what an “imaginary” number really is. It's just a means of getting to the right answer using the tool of complex mathematics to do so. Although well beyond the scope of this article, a review is worthwhile of the many ways complex math has advanced the solution of engineering problems.

Think of a pair of perpendicular axes, where the resistance element R is plotted along the horizontal (real) axis and the reactance X is plotted along the vertical (imaginary) axis, as illustrated below.



Resistance R is a real number that will always be nonnegative (right half of the plane), but reactance X can be positive (inductive) or negative (capacitive). In complex mathematics, this Cartesian coordinate frame is called the “complex plane.” We can see that the magnitude of impedance (generally written as $|Z|$) is the hypotenuse of the triangle, i.e., $|Z| = \sqrt{R^2 + X^2}$

We can fully describe complex impedance Z as a magnitude $|Z|$ and an angle from the R axis, θ . So, $Z=R+jX$ and $Z=|Z|\angle\theta$ are equivalent expressions—they both fully characterize the complex impedance Z . The former is expressed in rectangular coordinates and the latter is in **polar coordinates**. So, by exploiting complex mathematics, we're able to express the magnitude of impedance and the phase angle between voltage across and current through this impedance using polar coordinate representation.

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Impedance in polar coordinates—not a complex topic! (Or, is it?)

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Ohm's law for AC looks very similar to its form for DC, viz., $V = IZ$, voltage equals current multiplied by impedance (compared to $V = IR$ for DC). However, now V , I and Z are all complex numbers, embodying magnitude and phase information. Let's illustrate the advantage of expressing these parameters in polar coordinates with a simple example.

We wish to determine the impedance of a circuit. We place an AC voltage across the circuit, display that voltage on our oscilloscope and measure 10 volts rms. On our oscilloscope display, we position the positive-going zero crossing of the AC sine wave as close as possible to a zero reference, let's say at 5 degrees into the sine wave. Then, we measure the current going through the circuit and, after placing it on the scope display, see that it is 100 milliamperes rms and has a phase angle relative to the displayed voltage of 30 degrees later in its cycle (or 35 degrees relative to our reference), i.e., current is leading the voltage. Said slightly differently, current is already at 35 degrees in its cycle at the same time that voltage is just at 5 degrees. (As an aside, we know already that this must be a circuit in which capacitive reactance dominates.) Expressing Z mathematically, using Ohm's law and based on these measurements,

$$Z \text{ (ohms)} = V \text{ (volts)} / I \text{ (amperes)} = 10\angle 5^\circ / 0.1\angle 35^\circ$$

We've expressed the complex impedance Z in terms of voltage (10 volts at phase angle 5 degrees) divided by current (0.1 amperes at phase angle 35 degrees) using Ohm's law for alternating current and **expressed in polar coordinates**. The real advantage of using polar coordinates is that division is performed simply by dividing magnitudes and subtracting angles. (Similarly, multiplication is performed by multiplying magnitudes and adding angles.) So, we can calculate Z in this example as follows:

$$Z = (10/0.1)\angle(5^\circ - 35^\circ) = 100\angle -30^\circ \text{ ohms}$$

We could now convert this polar coordinate representation into rectangular coordinates, if we wish, with simple trigonometry as follows:

$$R = 100 \cos(-30^\circ) = 86.6 \text{ ohms}$$

$$X = 100 \sin(-30^\circ) = -50 \text{ ohms}$$

So, $Z = 86.6 - j50$ ohms, in rectangular coordinates.

Note that we could have done the calculation of Z using only rectangular coordinates. However, the procedure is much more complicated. [5] Briefly, the procedure is:

- 1) V and I are converted to rectangular coordinates.
- 2) Z is expressed as the ratio of V to I in rectangular coordinates as follows:

$$Z = (10\cos 5^\circ + j10\sin 5^\circ) / (0.1\cos 35^\circ + j0.1\sin 35^\circ)$$

3) Both numerator and denominator of this ratio are multiplied by the "complex conjugate" of the denominator, viz., $(0.1\cos 35^\circ - j0.1\sin 35^\circ)$ —note the sign change on the imaginary term; the result of multiplying the denominator by its complex conjugate is that the resulting denominator will be a real number.

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Impedance in polar coordinates—not a complex topic! (Or, is it?)

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4) Finally, the product of complex numbers in the numerator is simplified, remembering that j^2 equals -1. The result will be the same answer we achieved with the much simpler use of polar coordinates and a little trigonometry, viz., $Z = 86.6 - j50$ ohms.

Go through the exercise above to see that the labor to perform those calculations in rectangular coordinates is much more tedious and time-consuming, compared to the use of polar coordinates. Hence, the tremendous value of using polar coordinates, facilitated by complex math, for making these kinds of calculations. It's not uncommon to see complex mathematics in technical articles in *QST* and other amateur radio publications. It's hoped that this article demystifies complex impedance and its representation in polar coordinates. ■

References:

1. <http://hyperphysics.phy-astr.gsu.edu/hbase/electric/imped.html>
2. <http://hyperphysics.phy-astr.gsu.edu/hbase/electric/imped.html>
3. <https://www.khanacademy.org/math/algebra2/introduction-to-complex-numbers-algebra-2/the-complex-numbers-algebra-2/v/complex-number-intro>
4. <http://scipp.ucsc.edu/~johnson/phys160/ComplexNumbers.pdf>
5. <https://www.youtube.com/watch?v=5QzMbuiSfgc>

Ham-themed TV shows “Frequency” and “Last Man Standing” go QRT

From the ARRL Weekly Letter, May 12, 2017:

Hollywood Reporter [reports](#) that The CW television network has pulled the plug on the Amateur Radio-themed show "Frequency," which stars Peyton List as young police detective and radio amateur Raimy Sullivan. "Frequency was a combination of two of the season's most popular trends: time travel and movie reboots," *Hollywood Reporter* said, noting that the show had been averaging 1.5 million viewers.

As in the 2000 movie *Frequency* that inspired the TV show, Amateur Radio provides a means for the protagonist to reconnect over time with her late estranged father Frank Sullivan. NBC had initially expressed interest in launching a "Frequency" TV reprise, but ultimately passed on the idea.

"Frequency" had joined ABC's "Last Man Standing," starring real-life radio amateur Tim Allen as Mike Baxter, KAOXTT, in providing Amateur Radio some small-screen exposure, albeit fictional. [News](#) on May 10 from *Variety* is that ABC has now canceled "Last Man Standing" after six seasons. Occasional scenes on "Last Man" showed Allen's character at his ham station.

The show's producer is John Amodeo, NN6JA, and real-life Amateur Radio special events have been staged from the show's Hollywood set. ■



Tim Allen in his role as Mike Baxter, KAOXTT, with TV grandson played by Flynn Morrison. PHOTO CREDIT: ABC TELEVISION

Still nearing an end: Amendment to California's "distracted driver" law now in state Senate

The California Assemblyman who introduced last year's "Distracted Driver" law that inadvertently omitted language protecting most mobile ham radio use while driving has tried to make amends. Assemblyman Bill Quirk from the San Jose area introduced in February 2017 Assembly Bill 1222 that removes "specialized mobile communication devices" from the list of prohibited devices while driving. While some hams had wanted a specific exclusion stated for amateur radio the removal of "specialized mobile communications device" also will permit business and government two-way radio uses as well as Citizen's Band radio.

The amended bill passed the California Assembly unanimously on a consent calendar during the May 11, 2017, Assembly session. The bill is now in the Senate where it went on May 24 to a committee on transportation and highways. Stay tuned for further news...but the California Highway Patrol's definition below still applies: a radio installed in a vehicle with a wired hand microphone is not considered a "specialized mobile radio device" under the current law. ■

-----Original Message-----

From: Comm-Net Message [<mailto:noreply@chp.ca.gov>]

Sent: Tuesday, March 28, 2017 8:23 AM

To: @CHP

Subject: Comm-Net: Enforcement of Section 23123.5 of the California Vehicle Code

Enforcement of Section 23123.5 of the California Vehicle Code

To: All Commands

Reference: Action Required

Subject: Enforcement of Section 23123.5 of the California Vehicle Code

Effective January 1, 2017, Section 23123.5 of the California Vehicle Code (CVC) was amended by Assembly Bill 1785, which substantially expanded the scope of Section 23123.5 CVC, from simply prohibiting the use of a wireless phone to text while driving, to prohibiting holding and operating a handheld wireless telephone or an electronic wireless communications device while driving.

However, a driver may still use a handheld wireless telephone or an electronic wireless communication device while driving when:

The handheld wireless communication device is mounted to a windshield (in compliance with Section 26708[b] CVC), dashboard, or center console in a manner which does not interfere with the drivers view of the road, and;

The drivers hand is used to activate or deactivate a feature with a single tap or swipe of the drivers finger.

Pursuant to Section 23123.5(f) CVC, the definition of an electronic wireless communications device includes, but is not limited to: a broadband personal communication device, a specialized mobile radio device, a handheld device or laptop computer with mobile data access, a pager, or a two-way messaging device.

Section 23123.5 CVC does not apply to manufacturer-installed systems which are embedded in the vehicle, nor does it apply to an emergency services professional using a wireless telephone while operating an authorized Emergency vehicle, in the course and scope of employment.

For the purposes of Section 23123.5(f) CVC, a radio installed and mounted in a vehicle with a wired hand microphone (e.g., business band or citizen band [CB]radio) is not considered a wireless communication device, nor is it considered a specialized mobile radio device, and therefore is not subject to enforcement under this section.

This information will be added to an upcoming revision to Highway Patrol Manual 100.68, Traffic Enforcement Policy Manual, Chapter 5, Other Enforcement Issues.

HAMCON 2017 / ARRL SW Division Convention comes to Torrance in Sept.

Save the dates: The PVARC is one of 12 Los Angeles and Orange County radio clubs sponsoring HAMCON 2017, September 15-17, at the Torrance Marriott Redondo Beach Hotel (Del Amo Center).

HAMCON 2017 is also the 2017 ARRL Southwestern Division Convention, with a full array of technical talks on all aspects of amateur radio. Equally interesting to many will be the 63-booth Vendor Hall with many major ham radio manufacturers. If you want to see or touch Elecraft, FlexRadio, BridgeCom products, for example, HAMCON 2017 is your place.

The PVARC is again staffing HAMCON's Information Desk during Convention operating hours. In August we'll be asking for club members to volunteer working in two-person shifts of two hours at the Information Desk. The PVARC also participates in HAMCON 2017 with Diana, AI6DF, again serving as convention Chair and Jeff, K6JW, as our club's delegate on HAMCON's planning committee.

Save the dates of September 15-17 for a great convention—an ARRL Divisional Convention doesn't get closer to home than this. Register now for the early registration discount (www.hamconinc.org). ■



For us, it's conveniently held at the Torrance Marriott Redondo Beach Hotel next to Del Amo Fashion Center.

Palos Verdes Amateur Radio Club

An American Radio Relay League Affiliated-Club

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Monthly Meetings:

1st Thursday (except August and December) at 7:30 pm
at Fred Hesse Park, 29301 Hawthorne Blvd., Rancho
Palos Verdes, CA. Visitors always welcome.

Repeaters (Open, though often listed as "Closed"):

Club: K6PV, 447.120 MHz (-), PL 100.0, CTCSS
"PV-West": K6IUM, 449.980 MHz (-), PL 173.8, CTCSS

To order a Club badge:

Karen Freeman, KG6BNN, 310-541-6971

To order a Club jacket or patch:

Dave Scholler, KG6BPH, 310-373-8166

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Front page photo — *The Pt. Vicente Lighthouse and shoreline photographed shortly before sunset on Friday, May 26, 2017.*
PHOTO: DIANA FEINBERG, AI6DF

◆ PVARC's financial report is available upon request to any member.

PVARC Short News Items

The PVARC's upcoming meeting topics...and beyond

The PVARC's July 6, 2017, monthly meeting has a fabulous presentation on the "hottest" (in popularity, not thermally) HF transceiver now on the market: Icom's IC-7300. Presenting will be PVARC members Ray Day, N6HE, and Clay Davis, AB9A, who both own this radio. Ray brought his IC-7300 to Two Harbors on Catalina Island for our recent IOTA DXpedition and his IC-7300 was heavily used. Even during our North American RTTY QSO Party non-stop participation the IC-7300 never got warm to the touch. They'll also be discussing some newer developments in SDR radios announced at Dayton Hamvention.

There's no PVARC monthly meeting in August...instead we have our annual family picnic at the Pt. Vicente Lighthouse on Sunday, August 20.

At our September 7th monthly meeting PVARC member Alan LaFever, AK6G, will give a very informative presentation on "3-D Printing" and how you can get into it. Alan has fabricated numerous parts using 3-D printing from inside his garage---and prices of many 3-D printers have dropped lately.

Speaking elsewhere....your **QRO** Editor Diana. AI6DF, is speaking at the Crescenta Valley Radio Club's monthly meeting on July 13 about our International Lighthouse Weekend presentation. She is also speaking about 220 MHz radio at the Antelope Valley Amateur Radio Club in Lancaster on July 26 and at the Los Angeles Amateur Radio Club in South Central L.A. on Sunday, August 6, with our Lighthouse Weekend presentation. Additionally our club Vice President Ray Day, N6HE, is speaking at the Downey Amateur Radio Club's October meeting about our 2017 Catalina Island DXpedition. ■

...plus later this year

Our 2017 Holiday Dinner will be at Ports O'Call Restaurant on San Pedro's waterfront Thursday, December 14, 2017, in the upstairs "Breakwater Room." Returning then for an encore guest speaking engagement is Dr. Jay Jones, WB9FPM and Professor of Biology at University of La Verne. Jay spoke at our December 2011 Holiday Dinner and his presentation then was very well received. More information to follow. ■



Need a PVARC patch?

If you want a PVARC logo patch for a hat, shirt, jacket, soft-side bag or whatever we have a new batch with higher-resolution stitching.

New patches are available for \$4 each at all our meetings or by contacting Dave Scholler, KG6BPH, at 310-373-8166 (or email him at: jdavidsscholler@hotmail.com .) If you order a PVARC club jacket one patch is sewn onto the jacket's left front and included in the cost. These jackets may also be ordered through Dave Scholler. ■

Short News Items

Dr. DX is in—a new service

The Southern California DX Club has initiated a program called “Dr. DX” in which a team of experienced DX'ers will answer emails from fledgling DXers with any sort of question relating to DX'ing

The club has produced a slick brochure which is being distributed to Southern California radio clubs to entice hams who are not (yet) DX'ers into that area of the hobby. Other ham clubs wishing to obtain a copy of the brochure should email DrDX@SCDXC.org with a request and a .pdf will be sent to that club.

In the SCDXC's effort to promote DX'ing in general, however, the Southern California DX Club is not limiting the Dr. DX program to just the Los Angeles area but will answer every email received from anywhere.

With the Dr. DX program, new DX'ers can ask about equipment, operating technique, antennas, QSL'ing....you name it and someone in the SCDXC Dr. DX team will have the right answer!

DX questions should be sent to DrDX@SCDXC.org. From there the emails will be forwarded to Southern California DX Club Dr. DX team members who will respond to every question. ■

Helpful guidelines when submitting QRO articles

Our **QRO** newsletter welcomes articles about technical subjects and PVARC member activities.

To facilitate layout and editing please send your article as two separate files: 1) all the text as a straight Microsoft Word file and 2) any photos, illustrations, or diagrams in a second file or as separate JPEG files. If possible please keep the text portion to not exceed 800 words. Thanks! ■

WELCOME NEW MEMBERS OF THE PALOS VERDES AMATEUR RADIO CLUB

IN 2016-2017

MARK CHILDIR, KM6BCL

DALE GEHR, KM6BCI

ROMYLEEN MITRA, KM6BCJ

NICHOLAS KOWALCZYK, KM6BCN

ANNETTE SOLOMON, KM6DRA

BRUCE GILBERT, KM6DQX

CARL HINDMAN, KM6DRB

HUGO DOMINGUEZ, JR., KM6DQU,

JARED BOCKOFF, KM6DQV

STEVE WRAY, KM6DQW

THEODORE LEY, KM6DRC

JOE BARGER, N6KK

DENISE ANN HUGHES-MURPHY, K6DAH

STEFAN FERRIER, KM6GXW

CINDY SNYDER, KM6GYG

MICHAEL LYNCH, KM6GYA

STUART MASTROIANNA, KM6GYK

THOMAS ESSENPREIS, KB9ENS

MARK GREENBERG, KM6GYC

LORI TANIMURA, KM6GXY

CHERI TANIMURA, KM6GXX

HEIDI STROMBURG, KG0GGY

MIKE SEMOS, N6DBS (RETURNING
MEMBER)

RICK HEASTON, KM6GXZ

LARRY FADDEN, KK6TXN

STEVE SHERIDAN, KM6IQO

Palos Verdes Amateur Radio Club Calendar 2017

JANUARY							FEBRUARY							MARCH							APRIL						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	29	30	31	1	2	3	4	26	27	28	1	2	3	4	26	27	28	29	30	31	1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	5	6	7	8	9	10	11	2	3	4	5	6	7	8
15	16	17	18	19	20	21	12	13	14	15	16	17	18	12	13	14	15	16	17	18	9	10	11	12	13	14	15
22	23	24	25	26	27	28	19	20	21	22	23	24	25	19	20	21	22	23	24	25	16	17	18	19	20	21	22
29	30	31	1	2	3	4	26	27	28	1	2	3	4	26	27	28	29	30	31	1	23	24	25	26	27	28	29
5	6	7	8	9	10	11	5	6	7	8	9	10	11	2	3	4	5	6	7	8	30	1	2	3	4	5	6

MAY							JUNE							JULY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
30	1	2	3	4	5	6	28	29	30	31	1	2	3	25	26	27	28	29	30	1	30	31	1	2	3	4	5
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
28	29	30	31	1	2	3	25	26	27	28	29	30	1	23	24	25	26	27	28	29	27	28	29	30	31	1	2
4	5	6	7	8	9	10	2	3	4	5	6	7	8	30	31	1	2	3	4	5	3	4	5	6	7	8	9

SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
27	28	29	30	31	1	2	1	2	3	4	5	6	7	29	30	31	1	2	3	4	26	27	28	29	30	1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
24	25	26	27	28	29	30	29	30	31	1	2	3	4	26	27	28	29	30	1	2	24	25	26	27	28	29	30
1	2	3	4	5	6	7	5	6	7	8	9	10	11	3	4	5	6	7	8	9	31	1	2	3	4	5	6

2017 Major Contest Dates

- Jan. 21: North American SSB QSO Party
- Jan. 27-29: CQ Worldwide 160-Meter (CW)
- Feb. 10-12: CQ Worldwide RTTY WPX
- Feb. 17-19: ARRL DX (CW)
- Feb. 25: North American RTTY QSO Party
- Feb. 24-26: CQ Worldwide 160-Meter (SSB)
- Mar. 3-5: ARRL DX (SSB)
- Mar. 24-26: CQ Worldwide SSB WPX
- May 26-28: CQ Worldwide CW WPX
- Jun. 10-11: ARRL June VHF Contest
- Jun. 24-25: ARRL Field Day

- July 8-9: IARU World Championships
- July 15-16: CQ Worldwide VHF
- July 15: North American RTTY QSO Party
- Aug. 19: North American SSB QSO Party
- Sept. 9-10: ARRL September VHF Contest
- Sept. 22-24: CQ Worldwide RTTY DX
- Oct. 7-8: California QSO Party
- Oct. 27-29: CQ Worldwide SSB DX
- Nov. 4-5: ARRL Sweepstakes (CW)
- Nov. 18-19: ARRL Sweepstakes (SSB)
- Nov. 24-26: CQ Worldwide CW DX
- Dec. 8-10: ARRL 10-Meter Contest

PVARC Nets
Tuesdays at 7:30 pm
on K6PV, 447.120
MHz (-), PL 100.0, and
144.910 MHz, Tone
Scquelch, PL 156.7

PVARC Meetings & Meals

Meetings 7:30 pm **1st Thursdays** (eff. 6/1) except August and December at Fred Hesse Park, 29301 Hawthorne Blvd., Rancho Palos Verdes. Guests welcome.

No-host dinner at 5:30 pm before club meetings at Red Onion Restaurant, 736 Silver Spur Road, Rolling Hills Estates.

2nd Saturday each month: PVARC "HF Enthusiasts Group", 10:00 am

3rd Sunday in August: Annual family picnic at Pt. Vicente Lighthouse.

December 14: Holiday Dinner, Ports O'Call Restaurant, San Pedro.

PVARC Public Service Events

- Apr. 23:** Ridgecrest Int. School 5K
- Aug. 12:** Rolling Hills Estates "Hills Are Alive" 5K/10K
- Sept. 4:** "Conquer the Bridge" Race
- Oct. 14:** RAT Beach Bike Tour
- Nov. 18:** P.V. Half-Marathon/10K

Major Ham Radio Conventions

- Feb. 4:** Palm Springs Hamfest
- Feb. 17-18:** Yuma Hamfest, Yuma, AZ
- Apr. 21-23:** International DX Convention, Visalia, CA
- May 19-21:** HamVention, Xenia OH
- Sep. 15-17:** **HAMCON 2017, Torrance**
- Oct. 20-22:** Pacificon, Santa Clara, CA

PVARC HF Operating Events

- Feb. 22-26:** Islands On The Air DXpedition, Catalina Island;
- June 24-25:** ARRL Field Day;
- Aug. 18-20:** Intl. Lighthouse Weekend, Pt. Vicente Lighthouse

PVARC Ham License Classes

Fred Hesse Park (Fireside Room), 29301 Hawthorne Blvd., Rancho P.V.

Feb. 4 & 11; May 27 & June 3; additional dates to be announced.



Palos Verdes Amateur Radio Club
P.O. Box 2316
Palos Verdes Peninsula, CA 90274

www.n6rpv.net/pvarc or www.k6pv.org

NEW MEMBER & MEMBERSHIP RENEWAL FORM

NEW: _____ or RENEWAL: _____ MEMBERSHIP DATE: _____

Last Name: _____ First Name: _____ Spouse: _____

Street Address: _____

City: _____ Zip: _____

Phone: Home _____ Work _____ Cell _____

Email address: _____

(Unless otherwise noted emails will be sent to the applying member only)

License Call: _____ License Class: _____ ARRL Member? _____ Birth Mo./Day: _____

Other amateur radio groups you belong to: _____

Additional Household and/or Family Members (if Applicable):

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Name _____ Call _____ Class _____ ARRL _____ Birth Mo./Day: _____

Individual membership (\$15.00) \$ _____

Household and/or Family membership (\$20.00) \$ _____

Additional donation to support PVARC activities \$ _____

Cash: _____ or Check #: _____ Date _____ TOTAL \$ _____

Please make checks payable to: Palos Verdes Amateur Radio Club; Dues based on January 1st to December 31st year.

All New and Renewal Member applications must be signed below.

I am applying for a new or renewal membership in the Palos Verdes Amateur Radio Club and understand that by accepting membership I agree to abide by the Club's constitution and by-laws (available on-line at: http://www.n6rpv.net/pvarc/constitution.htm or upon request.)

Signature: _____ Date: _____

Family Member Signature: _____ Date: _____

Family Member Signature: _____ Date: _____

HAMCON 2017

ARRL Southwestern Division Convention

September 15-17, 2017

Torrance Marriott Redondo Beach Hotel
3635 Fashion Way
Torrance, CA 90503



Hamcon, Inc. is a 501(c)3 Non Profit Organization
Donations to Hamcon, Inc. are tax deductible

"Ham Radio for Everyone" is our theme with much to see and do at HAMCON 2017

- Full range of talks by experts on radio equipment, operating techniques, public service, DXing, technical subjects, and much more
- 10,300 sq. ft. Vendor/Exhibit Hall with 63 booth spaces
- Distinguished speakers at Saturday lunch and dinner, and Sunday breakfast
- Extensive prize drawings
- W1AW/6 Special Event station
- ARRL Forums, Ham License test sessions
- Young ham forum
- Sunday swap meet
- Discount hotel room rates (available through the Marriott link on our website)
- With more to come . . .

AND FOR THE FIRST TIME EVER

Special Friday Afternoon tour of the **Battleship Iowa**

- Includes Catered Buffet Dinner in the Officer's Wardroom
- Tour the Radio Room (not open to the general public) and operate the ship's NI6BB amateur station
- Bus transportation to and from the Marriott Hotel included
- Limited to 80 guests, so register early

For complete convention details, registration and hotel bookings log onto:

WWW.HAMCONINC.ORG

Register for HAMCON 2017, the 2017 ARRL Southwestern Division Convention, at the Torrance Marriott Hotel



HAMCON 2017 2017 ARRL Southwestern Division Convention

September 15-17, 2017
Torrance Marriott Redondo Beach Hotel
3635 Fashion Way, Torrance, CA 90503

Convention Registration Form

Visit us at: www.hamconinc.org/

All attendees over 18 years old must have a separate paid registration; no charge for registered minors 18 or younger when accompanied by paid Adult registrant.

Call Sign: _____

Last name: _____

First name: _____

Street or mailing address: _____

City: _____

State & ZIP Code: _____

E-mail address: _____

Phone: _____

Additional Attendee #1

Call Sign: _____

Adult: Minor:

Last name: _____

First name: _____

Additional Attendee #2

Call Sign: _____

Adult: Minor:

Last name: _____

First name: _____

Additional Attendee #3

Call Sign: _____

Adult: Minor:

Last name: _____

First name: _____

	Per Person	x	Number	= \$ Total
Early Registration, postmarked by Aug. 15, 2017:	\$20			
Regular Registration, Aug. 16 to Sept. 17, 2017:	\$25			
BEST VALUE: Registration and all three meals	\$135			
Saturday Lunch**: ___ # Chicken ___ # Vegetarian	\$36			
Saturday Dinner**: ___ # Chicken ___ # Vegetarian	\$55			
Sunday Breakfast**	\$29			
Battleship Iowa Special Event (bus departs Torrance Marriott at 2:15 pm, Friday, Sept. 15)	\$50			

I want to operate NI6BB station aboard the Iowa

** Each meal has a special prize drawing exclusively for attendees

Each Adult paid Early Registrant receives one ticket for the Early Registration Prize drawing. All Adult paid registrants receive two free Prize Drawing tickets.

Total Amount Paid:

Cash	Check
------	-------

Please send Registration Form and Check to:

For HAMCON staff use:

Registration received by: _____

Date received & registration #: _____

Amount received: \$ _____

HAMCON Inc.
c/o Margie Hoffman, KG6TBR
21612 Grovepark Dr.
Santa Clarita, CA 91350

On Father's Day Weekend there's also the Santa Maria Hamfest -- for more information visit: <http://www.mrwoolever.us/swapfest/>



Santa Maria Ham Radio Swapfest and BBQ

June 17, 2017

Saturday of Father's Day Weekend



Newlove Picnic Grounds

Orcutt Hill, South of Santa Maria, CA

GPS: 34° 50' 40.6" N, 120° 22' 42.8"

Turn off Hwy 101 southbound 1.8 mi. south of Clark Ave., Orcutt. (Just past yellow "T" sign)

[\[Greater Detail \]](#)

Talk-in

145.14 (-) PL131.8

Admission & Parking

FREE